

Applicant : Elbaz et al.
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Attorney's Docket No.: 16113-0328001

Amendments to the Drawings:

The attached new sheet of drawings includes new FIG. 5. FIG. 5 is added after existing FIG. 4 in the application.

Attachments following last page of this Amendment:

New Sheet (1 page)

REMARKS

Claims 1-31 were pending as of the action sent on September 29, 2008. Claims 1, 14, and 26 are in independent form.

Claims 3, 8, 13, 16, 21, and 26 are being cancelled. Claims 1, 4-5, 9-12, 14, 17-19, 22-25, 27, and 29-30 are being amended. New system claims 32-41, corresponding to method claims 1-2, 4-7 and 9-12 are being submitted. New program product claims 42-46 and new system claims 47-51, corresponding to method claims 27-31 are being submitted. New claims 52-53, depending from claim 1, new claims 54-55, depending from claim 14, and new claims 56-58, depending from claim 32, are being submitted. No new matter has been added. Support for the amendments can be found in the specification, for example, paragraphs 4-6, 17, 24, 35-36, 40-42, 44, and new paragraphs 51-55.

The specification is being amended to include disclosure from U.S. Patent Application Serial No. 09/493,701, now U.S. Patent No. 6,816,857 ("Weissman"), which the original specification incorporates by reference in Paragraph 1. The applicant has copied Figure 7 and included text corresponding to the description of Figure 7 in lines 9-49 in column 14 of Weissman. The applicant has also copied the description from column 12, line 64 to column 13, line 33 of Weissman.

Reconsideration of the action is respectfully requested in light of the foregoing amendments and the following remarks.

Interview Summary

The applicant thanks Examiner Coughlan for discussing the action in a telephone interview with the applicant's representative on March 30, 2009. The applicant's representative discussed the invention and its differences over the prior art with the examiner. The applicant's representative stated that the claims recite determining meanings for knowledge items based on meaning of information related to a use of the knowledge item, and that this feature was not shown in the art cited by the examiner. The applicant's representative further stated that the cited art does not disclose or suggest selecting a meaning of the knowledge items from a plurality of candidate knowledge item meanings based on a strength of relationship between the candidate

knowledge item meanings and meanings of the related information. Proposed amendments to the claims to more clearly distinguish the invention from the prior art were discussed. Examiner Coughlan noted potential issues with the claims under 35 U.S.C. § 101, and discussed amendments to overcome these potential problems with the applicant's representative.

Section 103 Rejections

Claims 1-7 and 14-20 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over McCandless, Michael, "Web Advertising," *IEEE Intelligent Systems*, May-June 1998 ("McCandless") in view of Knoblock, Craig A., "Searching the World Wide Web," *IEEE Expert*, Jan.-Feb. 1997 ("Knoblock") and U.S. Patent No. 5,956,740 ("Nosohara").

Claim 1, as amended, is directed to interpreting a knowledge item by using meanings of documents related to a use of the knowledge item to select a meaning for the knowledge item from a plurality of candidate knowledge item meanings. Claim 1 recites identifying first information related to a use of the knowledge item and determining one or more meanings of the first information. Claim 1 further recites determining a plurality of candidate knowledge item meanings for the knowledge item, determining a strength of relationship between each candidate knowledge item meaning and each meaning of the first information, determining a respective selection probability for each candidate knowledge item meaning from the strengths, and selecting one of the candidate knowledge item meanings as an interpretation of the knowledge item according to the selection probabilities.

Claim 1 was rejected as allegedly obvious over McCandless, Knoblock, and Nosohara. Claim 1, as amended, includes features similar to those originally in claim 10. The action stated that these features of claim 10 were taught in U.S. Patent No. 5,867,799 ("Lang").

McCandless describes web advertising, where advertisements are included in web pages presented to users. The ads can be selected for inclusion, for example, based on keywords, the expected audience of a web site, or user profiles.

Knoblock describes Internet search technologies, specifically, gathering, storing, and retrieving information from the web. Knoblock also discusses generic and keyword-based advertising as a source of revenue for web search engines.

Nosohara describes a web search system where a user enters a query in one language and the query is translated to other languages. The translation can include synonyms of the words of the query. The system then searches the web using the query and its translations, to provide a more comprehensive set of web results to the user.

Lang describes a system for filtering data to identify informons (a term Lang uses to refer to entities of information of interest to a user). The cited portions of Lang describe using Bayes' Rule to balance tradeoffs between "quality" and "cost" of a predicted dataset in order to find the smallest set size needed to support a decision of whether information is of interest to a user. (Lang, column 11, lines 8-17).

Claim 1, as amended, recites determining one or more meanings of one or more documents related to a use of a knowledge item. The action stated that Nosohara teaches determining meanings of the information in lines 21-30 of column 1 and line 65 of column 3 to line 17 of column 4, stating "The applicant states that identified information has at least one meaning. It is inherent to languages that words have at least one meaning. If the 'identified information' is matched then its meaning is known." (Office Action, page 4, lines 3-6).

The cited portions of Nosohara read as follows:

When documents are searched for by the words used in the documents, it should be noticed that each author of their document may use different words to describe the same meaning, material, matter, etc. Therefore, the search results may miss some expected documents when the searcher fails to designate some alternative words. To prevent such errors, it is known to use a synonym dictionary to automatically collect the words or terms having identical or equivalent meanings and to make a search formula using the collected terms . . .

. . . The application server B comprises the communication control means 2; a translation control means 3 for a free key word to translate the free key word into the other require languages; a synonym search means 4 which is provided with the functions for registration and modification of the word in order to search and output the words having identical or equivalent meaning within the free word input by the client; and a search formula generating means 5 which generates a search formula according to key words output from the translation control means 3 for the free key word. The application server B also comprises a primary storage means 8 for temporarily storing the search results; a translation control means 9 for optionally translating the search result; and an edit means 10 for editing the search results and

outputting the edited results to the communication control means 2. In this embodiment, a secondary storage means 11 is added to the primary storage means 8 to enable temporary storage of the document which may be the search result just prior to being displayed or the document not yet translated.

The cited portions of Nosohara describe using a synonym dictionary to determine words and terms having identical or equivalent meanings to words in a search query. However, Nosohara does not disclose or suggest determining the meaning of one or more documents related to the use of a knowledge item, as recited in claim 1. Instead, Nosohara only teaches determining synonyms for individual words. None of McCandless, Knoblock, or Lang provides the teaching that Nosohara lacks.

Furthermore, claim 1, as amended, recites determining a strength of relationship between each candidate knowledge item meaning and each first information meaning of the first information, and determining a respective selection probability for each candidate knowledge item meaning from the strengths. A similar feature was previously recited in claim 10. With respect to claim 10, the action stated that Lang discloses determining a probability using a strength of a relationship between the candidate meaning and the information meaning in lines 18-65 of column 11. The applicant respectfully disagrees.

The cited portions of Lang describes a technique for determining the minimum description length (MDL) of a vector representing an informon. (Lang, column 11, lines 8-17). The MDL technique is one of two techniques described by Lang for processing an informon into a standardized vector for use in various processes (Lang, column 10, lines 6-19). Lang describes determining which tokens can be left out of the vector by maximizing $p(H|D)$, i.e., the probability that a given hypothesis is true given observed data D, in order to find the smallest set size needed to maintain quality (Lang, column 11, lines 8-35). However, the cited portions of Lang do not disclose or suggest determining a strength of relationship between each candidate knowledge item meaning and each first information meaning of the first information, and determining a respective selection probability for each candidate knowledge item meaning from the multiple strengths, as recited in claim 1.

Finally, the applicant submits that the action does not provide the required objective analysis to justify the combination of McCandless, Knoblock, Nosohara, and Lang. The

Supreme Court has stated that an objective analysis is required when making an obviousness determination. *KSR International Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1734 (2007). This analysis must be made explicit. *KSR* at 1740.

McCandless is directed to web advertising, Nosohara is directed to translation in web search, Knoblock is directed to web search, and Lang is directed to identifying informants of interest to a user. With regard to combining McCandless and Nosohara, the action merely stated that it would have been obvious to combine McCandless and Nosohara “for the purpose of allowing the searching to cover a wider domain” (Office Action, page 4, line 22) and “for the purpose of increasing the domain of the search terms for improved results” (Office Action, page 9, lines 11-12). With regard to combining McCandless and Nosohara with Knoblock, the action merely stated that it would have been obvious to combine the three references “for the purpose of avoiding duplicate determinations of a knowledge item.” (Office Action, page 5, line 11). With regard to combining McCandless, Nosohara, and Knoblock with Lang, the action stated it would have been obvious to combine the three references “for the purpose of using the concepts to broaden the advertising horizon” (Office Action, page 11, line 11), “for the purpose of establishing a starting point of advertising marketing” (Office Action, page 13, line 1), “for the purpose of using an associated meaning based on a probability for finding a possible solution (Office Action, page 14, lines 10-11), “for the purpose of using established methods and algorithms which use weighted vectors for established reliable results” (Office Action, page 15, lines 1-2), “for the purpose of using a distance between meanings of words to establish clusters of words based on a similar meaning” (Office Action, page 15, lines 14-15), and “for the purpose of finding a result to the problem” (Office Action, page 16, line 18). The applicant respectfully submits that none of this constitutes sufficient analysis, and that most of these statements are merely a rephrasing of the language of the claim or a statement of an abstract goal. A more detailed analysis is required under *KSR*. Such an analysis should at least describe how a person of ordinary skill in the art would have combined the teachings of the cited references to achieve, for example, a method that satisfies the limitations of the claims.

The applicant submits that claim 1, and claims 2, 4-7 and 9-12, which depend from claim 1, are in condition for allowance for at least the foregoing reasons.

Claim 14 was amended to recite features corresponding to those of amended claim 1 and was rejected for the same reasons. Therefore, the applicant submits that claim 14, and claims 1, 17-20 and 22-25, which depend from claim 14, are in condition for allowance for at least the reasons set forth above with respect to claim 1.

Claims 27-31 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over McCandless, Knoblock, and Nosohara in view of Oreizy, Peyman and Gail Kaiser, "The Web as an Enabling Technology for Software Development and Distribution," *IEEE Internet Computing*, Nov.-Dec. 1997 ("Oreizy").

Claim 27, as amended, recites a method for associating an advertisement and a webpage based on a selected meaning of a keyword. Claim 27 recites selecting a meaning of a keyword from a plurality of candidate meanings based on a strength of meaning between each of the candidate meanings and one or more meanings of information related to a use of the keyword. Claim 27 further recites determining a semantic sub-space defined by a radius of semantic distance from the selected candidate keyword meaning, identifying an advertisement having an advertisement meaning that falls within the semantic subspace, and matching the keyword to the advertisement.

As discussed above with reference to claim 1, none of McCandless, Knoblock, Nosohara, or Lang disclose or suggest determining a strength of relationship between each candidate keyword meaning and each first information meaning and determining a selection probability for each candidate keyword meaning from the strengths. Oreizy does not provide the teaching that these references lack.

In addition, claim 27 recites identifying an advertisement having an advertisement meaning that falls within a semantic sub-space, where the semantic sub-space is defined by a radius of semantic distance from the first candidate keyword meaning.

The action stated that Knoblock teaches matching the keyword to an advertisement based at least in part on the selected at least one meaning at page 10, column 3, line 43 through page 11, column 1, line 11. The cited portions of Knoblock read as follows.

One key to success for Internet search services is to keep the costs of serving queries below the revenue generated by serving advertisements. The Lycos service, like many other Internet search services, generates

income mainly through advertising, both targeted and generic. For targeted advertising, the service checks the user's query terms against a list of keywords that have been sold at a premium to the advertisers. For example, if the user queries for "cars," an automobile advertisement can be shown. Depending on the level of targeting, every 1,000 advertisements shown bring in a gross revenue of \$20 to \$50. Therefore, the cost of performing a query cannot exceed 1 to 2 cents. Keeping this cost low is the secret to a successful service. It is much easier to build a spider to gather 60 million documents than it is to build a retrieval service that can query those documents millions of times a day for less than a penny a query. The keys here are a fast database implementation and efficient algorithms for query processing.

The cited portions of Knoblock describe traditional search engine advertising where advertisements are selected based on keywords that match the text of the user's query. However, the matching described in Knoblock is based solely on the text of the keywords, not a meaning for the keyword that has been selected from a plurality of candidate meanings for the keyword, as recited in claim 27. Specifically, Knoblock fails to disclose or suggest both determining a semantic sub-space defined by a radius of semantic distance from the selected keyword meaning and identifying an advertisement having a meaning within the semantic sub-space.

Furthermore, as discussed above in reference to claim 1, the applicant submits that the action does not provide sufficient analysis as to why McCandless, Knoblock, Nosohara, and Lang should be combined. Additionally, the action also does not provide sufficient analysis as to how Oreizy would have been, or why it should have been, combined with McCandless, Nosohara, and Knoblock, as the action merely stated that it would have been obvious to combine Oreizy with the references "for the purpose of finding an exact match from the keyword for increased accuracy." The applicant respectfully submits that a more detailed analysis is required under *KSR*.

The applicant submits that claim 27 and claims 28-29 and 31, which depend from claim 27, are in condition for allowance for at least the foregoing reasons.

New Claims

New claim 32 recites features corresponding to those of amended claim 1. Therefore, the applicant submits that new claim 32, and new claims 33-41 and 56-57, which depend from claim 32, are in condition for allowance for at least the reasons set forth above with respect to claim 1.

New claims 42 and 47 recite features corresponding to those of claim 27. Therefore, the applicant submits that new claims 42 and 47, new claims 43-46, which depend from claim 42, and new claims 48-51, which depend from claim 47, are in condition for allowance for at least the reasons set forth above with respect to claim 27.

New claim 52 depends from claims 1 and recites determining the one or more first information meanings by combining the determined meanings for each document in the first information and weighting the determined meaning for each document by a calculated weight for the document. The applicant submits that for this additional reason, claim 52 is in condition for allowance.

New claims 54 and 56 depend from claims 14 and 32 respectively and each recites features corresponding to those of claim 52. The applicant submits that new claims 54 and 56 are allowable for at least the reasons set forth above with respect to claim 52 and their respective base claims.

New claim 53 depends from claim 1 and recites determining a semantic sub-space defined by a radius of semantic distance from the first candidate keyword meaning and identifying an advertisement having an advertisement meaning that falls within the semantic sub-space. The applicant submits that for this additional reason, claim 53 is in condition for allowance.

New claims 55 and 57 depend from claims 14 and 32 respectively, and each recites features corresponding to those of claim 53. The applicant submits that new claims 55 and 57 are allowable for at least the reasons set forth above with respect to claim 53 and their respective base claims.

Conclusion

For the foregoing reasons, the applicant submits that all the claims are in condition for allowance.

By responding in the foregoing remarks only to particular positions taken by the examiner, the applicant does not acquiesce with other positions that have not been explicitly addressed. In addition, the applicant's selecting some particular arguments for the patentability of a claim should not be understood as implying that no other reasons for the patentability of that claim exist. Finally, the applicant's decision to amend or cancel any claim should not be understood as implying that the applicant agrees with any positions taken by the examiner with respect to that claim or other claims.

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Respectfully submitted,

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/Elspeth S. White/

Elspeth S. White

Reg. No. 62,133

Customer No. 26183
Fish & Richardson P.C.
Telephone: (650) 839-5070
Facsimile: (650) 839-5071